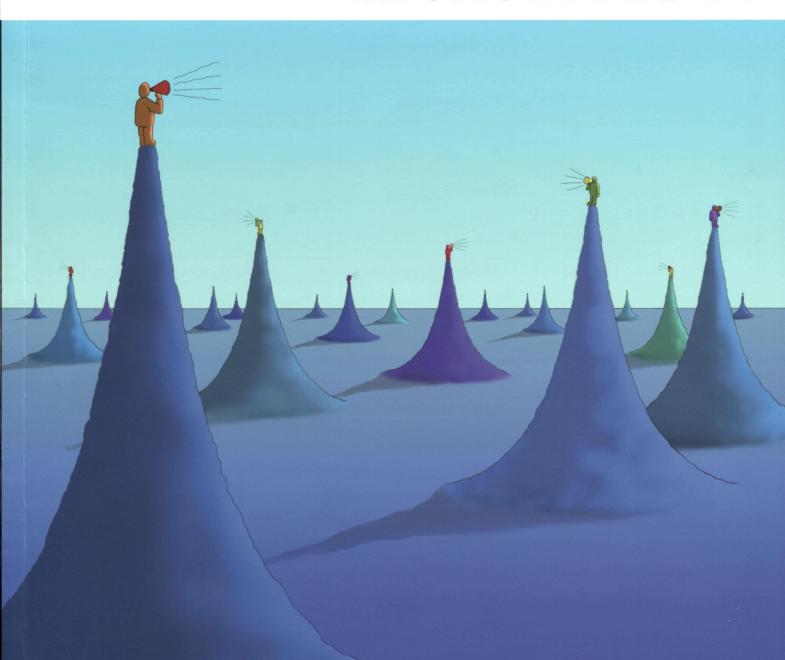


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MICROBIOLOGY

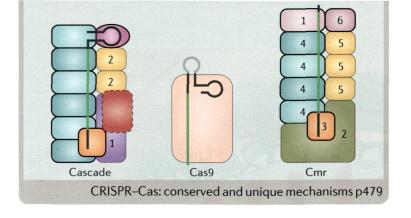


Long-range interactions

Intragenomic viral RNAs talk to each other

CRISPR-CAS SYSTEMS

Structural and mechanistic insights



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REVIEWS

Microbiological effects of sublethal levels of 465 antibiotics

Dan I. Andersson and Diarmaid Hughes Bacteria are frequently exposed to subinhibitory concentrations of antibiotics, and recent evidence suggests that this is likely to select for resistance. In this Review, Andersson and Hughes discuss the ecology of antibiotics, the ability of subinhibitory concentrations of antibiotics to select for resistance and the effects of low-level drug exposure on bacterial physiology.

FEATURED ARTICLE

Unravelling the structural and mechanistic basis of CRISPR-Cas systems

John van der Oost, Edze R. Westra, Ryan N. Jackson and Blake Wiedenheft

In this Review, van der Oost et al. summarize the recent structural and biochemical insights into the molecular mechanisms of RNA-guided interference by CRISPR-Cas systems in bacteria and archaea. By comparing the three main types of CRISPR-Cas systems, they highlight the unique and conserved properties of the system and also discuss outstanding questions that require further study.



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Functional long-range RNA-RNA interactions in positive-strand RNA viruses

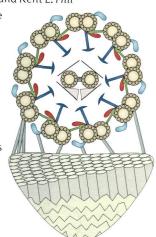
Beth L. Nicholson and K. Andrew White

Long-range intragenomic RNA-RNA interactions in the genomes of positive-strand RNA viruses involve direct nucleotide base pairing and can span distances of thousands of nucleotides. In this Review, Nicholson and White discuss recent insights into the structure and function of these genomic features and highlight their diverse roles in gene expression and genome replication of positive-strand RNA viruses.

Motility and more: the flagellum of Trypanosoma brucei

Gerasimos Langousis and Kent L. Hill

The protozoan parasite Trypanosoma brucei has a single flagellum that is present in all of its different developmental stages. In this Review, Langousis and Hill discuss the structural and functional features of the flagellum and highlight its central role in the virulence and transmission of this important human pathogen.



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► COVER: 'Long-range interactions' by Philip Patenall, inspired by the Review on p493.

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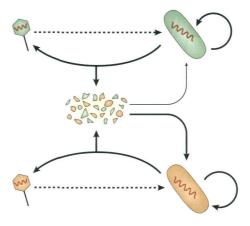
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ANALYSIS

519 The elemental composition of virus particles: implications for marine biogeochemical cycles

> Luis F. Jover, T. Chad Effler, Alison Buchan, Steven W. Wilhelm and Joshua S. Weitz

Weitz and colleagues use a biophysical scaling model of intact virus particles to quantify differences in the elemental stoichiometry of marine viruses compared with their microbial hosts. They propose that, under certain circumstances, marine virus populations could make a previously unrecognised and important contribution to the reservoir and cycling of oceanic phosphorus.



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